

Conclusion.

Sufficient has now been adduced to settle most satisfactorily the question at issue between Dr. Carpenter and myself as to the characters of *Syringothyris cuspidata*, as it may now be called.

The idea that the canaliferous septum and perforations are diagnostic features of the typical species of a certain genus, and that their absence distinguishes the type of another, both species being "undistinguishable by external conformation," must be unreservedly abandoned. The various evidences and considerations herein brought forward are totally opposed to any *isomorphism* of the kind; nay, the simple fact of a specimen, like Professor Harkness's, containing a well-developed canaliferous septum, but no perforations, is alone demonstrative of its complete fallacy. It may therefore be safely assumed that *Syringothyris cuspidata* and *S. typa* are one and the same species*.

II.—*Notes on Helicograpsus, a new Genus of Graptolites.*

By HENRY ALLEYNE NICHOLSON, D.Sc., M.B., F.G.S.

THE Graptolite for which I propose the above generic title was originally described by Hall, from the Hudson-River group, under the name of *Graptolithus gracilis* (Pal. N. York, vol. i. p. 274, and vol. iii. pp. 510-513). The first specimens which were discovered in Great Britain were obtained by Prof. Harkness from the Upper Llandeilo rocks of Dumfriesshire and Wigtonshire, and were described by him under the name of *Rastrites Barrandi* (Quart. Journ. Geol. Soc. vol. xi. p. 475). More recently it has been placed by Mr. W. Carruthers in his genus *Cladograpsus*, under the name of *C. gracilis* (Geol. Mag. vol. v. p. 130). Having, however, had the opportunity of examining an extensive suite of specimens, obtained by Prof. Harkness and myself from Glenkiln Burn, in Dumfriesshire, I still adhere to the opinion which I expressed some time ago, that it is unquestionably unique in its characters, and "should form the type of a new genus" (Geol. Mag. vol. iv. p. 258).

Gen. Char. Frond bilaterally symmetrical, composed of a non-celluliferous stem or "funicle," which is curved into the shape of the letter S, and gives off simple monopronidian branches from the two convex portions of the curve, so that

* It will necessarily follow that Martin's specific name, having priority, must be adopted in preference to the one proposed by Prof. Winchell.

they form two distinct sets, which diverge in opposite directions. The extremities of the funicle, where the branches cease to be given off, become themselves also celluliferous on one side; and in the centre of the funicle a small radicle may occasionally be detected. The celluliferous branches do not subdivide or give origin to secondary branches, as far as has been observed. It is probable that the perfect polypary was composed of two fronds, such as above described, placed transversely across each other in a cruciform manner; and though none of our English examples would support this view, such a specimen has, according to Hall, been discovered in America (Grapt. of the Quebec Group, p. 14, note).

The above characters combine to form a Graptolite so essentially distinct from all others, that there can be no hesitation in forming a new genus for its reception. By Hall it was placed in his genus *Graptolithus*, in accordance with the belief which led him to place *Dichograpsus*, *Tetragrapsus*, and *Didymograpsus* in the same genus—the belief, namely, that there existed in nature no such simple forms of Graptolites as *G. sagittarius*, Linn., *G. Sedgwickii*, Portl., &c. The reference to *Rastrites* was founded upon imperfect fragments, and has long ago been given up by its author. There remains, then, only the reference to *Cladograpsus* by Mr. Carruthers; and a short consideration will show that this is certainly inapplicable. In the genus *Cladograpsus* (originally founded by Geinitz to include certain *Didymograpsi*) Mr. Carruthers placed, some years ago, a peculiar branching Graptolite, which he described under the name of *C. linearis* (Ann. & Mag. Nat. Hist. ser. 3. vol. iii. No. 13). This he subsequently abandoned, placing the form in question under the genus *Dendrograpsus*, Hall (Geol. Mag. vol. iv. No. 2. p. 70). It was then described by myself as the type of a new genus, under the name of *Pleurograpsus linearis* (*ibid.* vol. iv. p. 256); and I at that time pointed out that the essential point in the definition of the genus, whereby it was distinguished from all other branching Graptolites known to me, was the entire absence of a “funicle,” or non-celluliferous basis, the frond consisting of a main celluliferous rachis giving off celluliferous branches, which in turn gave origin to secondary branches. Finally Mr. Carruthers returned again to the genus *Cladograpsus*, redefining it as follows:—“Polypary compound, growing bilaterally from the primary point, *irregularly and repeatedly branching and re-branching*, and without a central disk;” and he placed under this head both *Pleurograpsus linearis* and *Graptolithus gracilis* (*ibid.* vol. v. p. 129). Now a comparison of the respec-

tive characters of these two Graptolites demonstrates at once, as shown by the annexed diagrammatic sketches, the following fundamental differences:—*Pleurograpsus* is distinguished by the total absence of anything like a “funicle,” by the “irregular” manner in which the branches are given off from opposite sides of the main celluliferous stipes, and by the presence of secondary branches. *Helicograpsus*, on the other hand, is characterized by the possession of a long and remarkably distinct funicle, by the regular and definite plan upon which the branches are given off, and by the absence of secondary offsets.

Fig. 1.

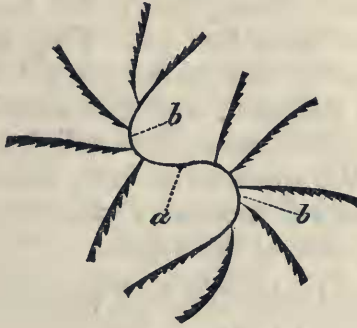


Fig. 2.

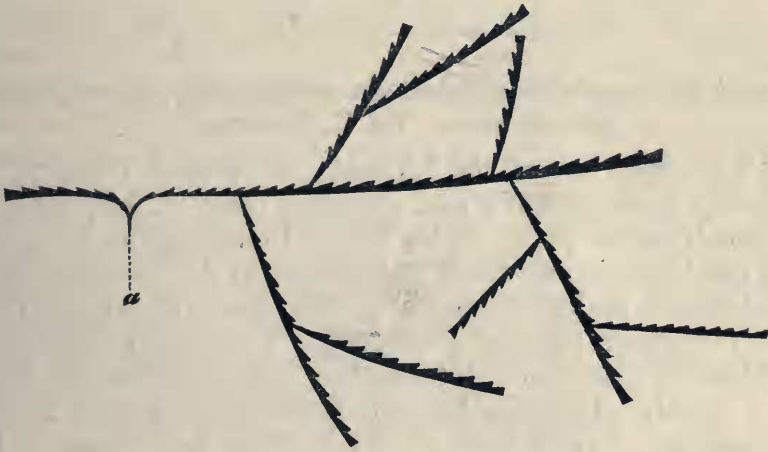


Fig. 1. Sketch of *Helicograpsus gracilis*, Hall, sp.: a, radicle; b, funicle.
 Fig. 2. Sketch of *Pleurograpsus linearis*, Carr., sp.

As the above-mentioned distinctions are as broad and as weighty as those which separate any of the genera of the Graptolitidæ from each other, there can be no hesitation in following the usual rule in the case of *Pleurograpsus* and *Helicograpsus*.

Hitherto one Graptolite only has been discovered which can

be referred to the genus *Helicograpsus*, viz. *H. gracilis*, Hall, sp. ; and it is distinguished by the following characters :—

Fronde compound, consisting of a tubular S-shaped funicle, which gives off two sets of monopronidian branches, one from each of the convex portions of the curve, in the manner described under the genus. The "funicle" itself is very slender, and in some specimens shows traces of a small triangular radicle in its centre. The celluliferous branches are from eight to twelve in number (*i. e.* four to six in each set) in most of our specimens ; but they are as many as thirty-three in an example figured by Hall. The first branches are almost rectangular to the funicle, but the later ones become gradually less so. They are very narrow at their commencement, but widen out till a breadth of $\frac{1}{40}$ to $\frac{1}{30}$ inch may be attained ; and this would doubtless be exceeded in larger specimens. The cellules are from twenty-five to thirty in the space of an inch, inclined to the axis at a small angle, the cell-mouths rectangular to the axis, and running partially across the stipe.

Loc. Common, and tolerably well preserved, in the anthracitic shales of Glenkiln Burn, in Dumfriesshire. Rare in the black slates of Cairn Ryan, Wigtonshire.

III.—*A few words on Euplectella aspergillum, Owen, and its Inhabitants.* By C. SEMPER*.

THE last numbers of the 'Annals of Natural History,' for December 1866 (p. 487) and January 1867 (p. 44), gave us two small memoirs by John Edward Gray upon a Sponge from the Philippines which was known to the travellers Quoy and Gaimard, and more accurately described by Owen, in 1841, under the generic name of *Euplectella*. Apparently this Sponge has hitherto been one of the greatest rarities in our museums ; and it is only within the last few years that a greater number of specimens, derived from the Philippines, have come to Europe. As I believe that I have no unimportant share in this increase of museum treasures, and have had the opportunity of seeing a considerable number of them, both here and in the Philippines, I will venture to make a few remarks upon them. So long as I had only a few claims of priority to make, I thought I might keep silence ; but now, when it appears as

* Translated by W. S. Dallas, F.L.S. &c., from Wiegmann's 'Archiv,' 1867, pp. 84-89.